Improving Patient Care Through the use of Evidence Based Order sets

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Background:
Trillium Health Center (Trillium) implemented an evidenced based order set project to improve patient care and order quality in preparation for computerized physician order entry (CPOE).

Methods:
Trillium is a 750 bed community hospital in with 136 medical beds. Free text hand written orders on blank paper order sheets were used prior to December 2003. In December 2003 paper based order sets incorporating evidence based best practices were made available to physicians admitting medical patients. The use of order sets was voluntary. The order sets were improved in July 2004 in response to end user feed back. When appropriate medical order sets, had a section titled DVT prophylaxis which gave the option to select unfractionated heparin (heparin) 5000 units subcutaneously (sc) BID. There was no education given. The total use of heparin for DVT prophylaxis for all medical pts was tracked for six months before and 12 months after the implementation of order sets. An audit of 291 charts selected at random from April to December 2004 looked at admission orders to the department of medicine. Variables assessed included order set use, heparin sc for DVT prophylaxis, allied health consults, urea, potassium protocol, order set coherency (defined as grouping of similar orders together), numbering of pages, documentation of allergies and code status.

Results:
The average prevalence of Heparin SC usage for DVT prophylaxis in all medical patients was 10.2% before December 2003 increasing to 22.3% in December 2004. . Order sets compared to blank order pages improved the use of heparin for DVT prophylaxis (36.2% vs. 9.6%), numbering of pages (100% vs2%), documentation of allergies (54.6% vs. 9.6%), documentation of code status (57.4% vs. 10.2%), ordering of allied health consults(62.8% vs. 12.7%), ordering a standardized insulin scale (19.1% vs. 7.6%), ordering a potassium protocol (63.8% vs. 0.5%) and order set coherency (86.2% vs.33.5%) All results $p<0.05$ or less. The ordering of urea fell from 59.4% without order sets to 39.4% with order sets ($p< 0.01$).

Conclusion:
Order sets are an effective method to improve compliance with evidence based practice and improve order quality in a voluntary paper based order system without the need for significant education. This makes order sets a potentially widely usable decision support tool while preparing for CPOE.